Refining Procedures: A Needs Analysis Project at Kuwait University

By Helen Basturkmen

This article outlines the procedures followed in the Needs Analysis (NA) project carried out in 1996 in the College of Petroleum and Engineering, Kuwait University. Assessing language needs is rarely straightforward, even at the practical level. The article focuses on the steps taken in the project and the rationale behind them. The overall aim is to offer an illustration of an NA project and to show how the procedural steps evolved. In addition, some of the findings and their implications for curriculum design are reported.

Needs analysis has been defined as the identification of difficulties and standard situations by observation of participants functioning in a target situation in conjunction with interviews and questionnaires. The overall aim of the NA is the identification of elements which will lend themselves to training (Gillet 1973). Language needs analyses are most often used where the learners in select situations face very similar difficulties. Richterich and Chancerell (1987) argue that the aim is not only to identify elements but to establish relative importance, to find out what is indispensable, necessary, or merely desirable. West (1994) states that NA is essentially a pragmatic activity focused on specific situations, although grounded in general theories, such as the nature of language and curriculum. Despite the fact that the term *needs analysis* is used, Hutchinson and Waters (1987) maintain it is *lacks* rather than needs that come to determine curriculum since what we are really interested in is the gap between the target proficiency and the present proficiency of the learners.

In 1996 an English language NA was undertaken at the College of Petroleum and Engineering, Kuwait University. The College runs undergraduate programs in each of its seven departments (petroleum, chemical, electronic, computer, mechanic, industrial and civil engineering). The undergraduate population is almost entirely Kuwaiti from an Arabic-speaking educational background. English is the medium of instruction in the College. The majority of students enter the College with an intermediate level of English language proficiency.

The English Language Unit (ELU) at the College was set up in 1975. Since that time, the ELU has provided language support courses to students during their years of undergraduate study. Classes involve a mix of students from the various departments. An analysis of the English language needs of the undergraduate student body was made when the ELU was established and a focus on English for General Engineering was adopted. Since that time, the courses offered had been modified in response to changing needs. However, there had been no formal reassessment of the students' needs. By the mid-1990s, core courses focused on notional/ functional language areas seen as particularly relevant to engineering texts (e.g., shapes, dimensions, instructions), and to writing a limited range of text types (e.g., process descriptions, physical description of tools/ devices, recommendation reports).

In 1996, the decision was taken to conduct a formal NA in the College; the results would be used to determine whether major reorientation of the curriculum and a newly defined role of the ELU were needed. A major objective of the NA was to establish a database of information concerning the use of English by students in the College. Specifically, information was to be sought concerning the English language demands in engineering studies, the areas of difficulty encountered meeting these demands, and the students' assessment of the usefulness of the English language instruction given. The project aimed to assess the students' language requirements in target academic situations in relation to their pres-ent situation, i.e., a *deficiency analysis* (Allwright and Allwright 1977).

Procedures

The methodology underlying the study was both qualitative (exploratory interviews, class observations, examination of student materials and samples) and quantitative through the implementation of structured questionnaires. The qualitative stage preceded the second, more quantitatively oriented stage.

Stage one: Using exploratory interviews
A small (N=10) number of graduate students and engineering faculty representatives of the college in terms of departments and gender were interviewed. The interviews were roughly based around an interview protocol (See Table 1 below). They lasted between forty-five minutes and one hour each, with one interviewer eliciting information and another noting it down. Graduate students were interviewed in this initial stage with the expectation that they would be able to offer an overview of language needs over the entire undergraduate course in light of their own recent experiences. The exploratory interview has been described as:

"(It is)...essentially heuristic, to develop ideas...rather than gather facts and statistics. It is concerned with trying to understand how ordinary people think and feel about the topic of concern to research. ...At most, interviewers will have...a handful of headings or topics with which they will seek to direct the interview." Oppenheim (1992:67)

The objective of the first stage was to gather basic, general information about the undergraduate programs in the college and students' language needs. Some of the information would feed into the development of the procedures and formal instruments in the second stage, the main data gathering stage. Our intention was to avoid relying on conjecture as input for questionnaire items or in deciding what to observe or collect. This initial stage involved a fairly superficial but broad investigation. We wanted to find answers to *what* rather than how *many/how often* questions. So, we tried to establish 1) *What* activities, events, operations in English were practiced, and 2) *What* terms the college community used to refer to language-based activities. The latter would help us understand the *emic* terms used in the College, terms which Watson-Gegeo (1988) defines as vocabulary used by those *within* a community to conceptualize and code.

One approach to NA is immediate preparation of questionnaire items, such as *, How important is attending seminars for your studies? Very, quite,not very,not at all.* However, there are potential pitfalls in this. For example, in an engineering or science college, the term *seminar* may be used

to denote an activity very different from that which the researchers (possibly from Arts or Humanities backgrounds) have in mind. We wanted to devise relevant questions in the questionnaire and frame them in terminology meaningful to the respondents.

In particular, in the informal interviews, information was sought in the following areas:

- Course and modes of instruction in undergraduate years of study-What science, general engineering courses, or courses in specific branches of engineering are taken and what modes of instruction are encountered, such as, what kind of lectures, what discussion type classes, or tutorials?
- Language-based tasks-What tasks, such as note taking, preparing field reports, joining in discussions, presenting projects are required of the students?
- Areas of language difficulty-What aspects of using English cause problems?
- Assessment of ELU courses-To what extent does ELU meet the expectations of the students?

Stage two: Survey by questionnaires and observations

Information from the initial stage was used in the second stage in the following ways:

- A list of language-based tasks/activities was collated from the information given (see Appendix 1 below). It was used to devise items for the questionnaire and target samples of texts for examination.
- A list of modes of instruction commonly practiced in the college was drawn up and this enabled us to plan class observations of a range of modes. We found that teaching assistants run labs and workshops in the college and Arabic was used almost exclusively, so we did not carry out observations of labs and workshops in stage 2 or devise items on this for the questionnaire.
- Ideas generated in talks with the interviewees provided concepts for items in the questionnaire concerned with the assessment of the ELU. For example, some interviewees stated that the ELU should not only be concerned with language needs for college study, but also for workplace engineering needs. An item on this issue was included in the questionnaire (see Appendix 2 below, section III).
- Decision-making on question types for the questionnaire was influenced by the information we got from the interviews. For example, interviewees tended to say every aspect of their English language ability (reading, writing, speaking, etc.) was very important for their studies. Therefore, we devised a ranking type item for this area in the questionnaire (see Appendix 2 below, section II, item 1) to avoid a situation in which all aspects would be marked as *very important* and thus produce data from which we would not be able to differentiate relative needs.
- We became aware of terms used in the College to denote aspects of language and instruction. We learnt, for example, that the *reading* skill in the local context tended to denote reading out loud and pronunciation. Therefore, we used the term *Reading Comprehension* in the questionnaire.

In addition, insights into the rationale behind the perceptions of needs were gained from the exploratory interviews. For example, we learnt that writing skills were not seen as particularly

important because generally teaching assistants assessed written assignments such as lab reports. The teaching assistants' approach was to check the data in the results sections and formulas, but to skip over textual information.

The questionnaire (Appendix 2) was translated into Arabic and administered to over 200 students in the College. As language needs may change over a four-year period of undergraduate study, we ensured that the questionnaire was distributed equally to students from each undergraduate year. Student questionnaires were administered during English classes to ensure the highest possible rate of return. A counter-part questionnaire for the engineering faculty was administered to sixty-five faculty and teaching assistants. To ensure an almost total rate of return by staff, heads of the engineering departments undertook responsibility for the distribution and collection of the questionnaires in their departments. In addition to the questionnaires, a number of classes were observed and notes made using an observation protocol (Appendix 3). Texts and sample student materials were collected.

Selected Findings and Implications

This section presents a very limited selection of findings from the data generated by the questionnaires and the implications of these findings for curriculum design.

Importance of skills area (Figure 1) the results indicated differing perceptions between students and faculty on the relative importance of reading. Faculty saw reading and listening as almost equally important, while students perceived listening as far more important. For the ELU these results indicated that reading and listening skills should be given more priority in the curriculum, and the current emphasis on the development of writing skills should be reconsidered.

Important language-based tasks The 10 tasks seen by the faculty and students as most important for study in the College are listed in the order of priority:

1. Reading textbooks;
2. Writing up lab reports/lab assignments;
3. Following lectures;
4. Reading instructions for labs and assignments;
5. Listening to instructions for labs and assignments;
6. Reading course and lecture handouts;
7. Note taking in lectures;
8. Listening to presentations and participating in the discussion;
9. Preparing projects;
10. Preparing answers to questions from textbooks.

With reference to this list, the ELU course developers will collect samples and make observations of the tasks/activities listed to identify the specific subskills and generic features involved in them. For example, we need to identify the subskills involved in using engineering textbooks, such as understanding the patterns of textual organization in the texts.

Students language problem areas (Figure 2) shows there was clearly some divergence between faculty and students' views. Few students reported inadequacy in any skill areas other than speaking. Far more faculty members perceived students as having inadequate skills. Over 60% of faculty members perceived students to have inadequate writing skills. What is clear from these results is that students' English language proficiency falls below faculty expectations and that students are unaware of the level of proficiency expected. This indicates that one objective of the ELU curriculum should be to raise students' awareness of the levels of proficiency which the faculty find acceptable. This will involve the ELU in collecting samples seen as adequate, good, or poor by faculty.

Conclusion

The article has reported aspects of a specific example of an NA project. For the ELU in the College, a database of information about study in the College, language needs, perceptions, expectations for English courses, etc., was generated and this will be used as a resource primarily for curriculum design.

In the initial stage, important insights about the context of studying and English language use in the College were obtained. These helped shape the development of the second stage of the study. Ideas for procedures and terms for use in questionnaire items evolved from the exploratory interviews. These ideas had a higher surrender value than would have been gained if we had set out in the first instance with a highly defined procedural plan and batteries of items. In this way, the NA project was a *process of learning* about the present situations of the students in the College, rather than an *object of investigation* . It was a process of refining and redefining procedures and concepts.

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Figure 1

Ranked 1st in importance by students for success in engineering studies.

	Entrance level students	1st and 2nd year students	3rd and 4th year students
Listening comprehension	41%	57%	51%
Reading comprehension	12%	13%	24%
Speaking	30%	24%	22%
Writing	17%	6%	3%

Ranked 1st in importance by faculty for undergraduate success in engineering studies.

Listening comprehension	47%
Reading comprehension	44%
Speaking	2%
Writing	7%

Figure 2

Ranked 1st in importance by faculty for undergraduate success in engineering studies.

	Faculty View	Students Self Report
Reading comprehension	34%	6%

Writing	63%*	6%
Listening comprehension	26%	11%
Speaking	34%*	24%
Technical Vocabulary	52%	26%

** Somewill almost inevitably by more aware of problems in language production rather than comprehension which is less open to observation.*

Table 1

Interview Protocol For Graduate Seminars

Date:_____

Name:_____

Background Information

1. Present position
2. Department
3. Courses studied at undergraduate level
4. Contact telephone

Communicative Needs

1. What tasks are dealt with? Which are most critical?
2. What difficulties are experienced?
3. Which skill(s) are most important?
4. What types of instruction are presented?

Assessment of Language Instruction Provided

5. What is your assessment?
6. What roles should the ELU play?

Extra Information

Appendix 1

Language-Based Tasks and Activities

The tasks involving English language skills identified by the interviewees were as follows:

Writing

lab reports
homework assignments (very limited writing involved)
test answers (very limited writing involved)
trip reports
projects in specific engineering fields, e.g., project on concrete

(approximately 50 pages)
final project (approximate length, 120 pages,
approximately 30% written text)
notes taken during lectures

Reading

text books (years 1 through 4)
journals (final years only - reading for specific projects,
also nonstudy focused,
but related, e.g., Byte, PC magazine)
test questions, including multiple-choice and true-false
type items
course information sheets
computer manuals
computer texts (help menu and other texts)
instructions
homework assignments
lab assignments, including problem statements
study notes
nonstudy related reading: newspapers, novels

Listening

lectures (monologue type)
lectures (3rd & 4th years, discussion type)
question/answer sessions in classes
listening to instructions and explanations in labs

Speaking

group discussions in class
asking professors questions
giving presentations

Appendix 2

Questionnaire

I. Background Information

First of all, please provide some information about yourself.
Please tick (v) the appropriate space(s).

1. Sex:

male female

2. Department in the College:

electrical	computer	chemical	industrial
mechanical		petroleum	civil

3. English language experience *before* college

__ I studied English as a subject at school.
__ I attended an English-medium school.
__ I lived abroad.
__ Other (please specify) _____

4. **Present English courses**

   098___ 123 ___ 221___

5. **If your present English course is 123 or 221, please answer this question. *If not, leave it blank.***

   Did you take the 098 course in College?

   Yes___ Number of times: 1__ 2 __ No___

6. **Is your native tongue Arabic?**

   ___ Yes.

   ___ No.

7. **When do you use English?**

   ___ When studying

   ___ When socializing

   ___ At home

   ___ Other (please specify) _____

II. Language Needs in the College

Now for some information about using English for your studies.

1. **Of the four major English skills, which are the most important for success in your other subjects in the College? Number choices 1–4, with 1 as the most important**

   ___ Reading comprehension

   ___ Listening comprehension

   ___ Speaking

   ___ Writing

2. **How important are these tasks in English for your other subjects? Circle the appropriate number according to the following scale.**

   1 = very important 2 = important 3 = not important

   Reading

textbooks	1 2 3
technical articles in journals	1 2 3
manuals	1 2 3
course handouts	1 2 3
texts on the computer	1 2 3
instructions for assignments/projects	1 2 3
instructions for labs	1 2 3
study notes	1 2 3
other (please specify) _____	

   Writing

lab reports	1 2 3
assignments	1 2 3
field-trip reports	1 2 3
projects (short)	1 2 3
taking notes in lectures	1 2 3
answering questions related to part of the textbook	1 2 3
other (please specify) _____	

   Listening and Speaking

following lectures	1 2 3

following question/answer sessions in class 1 2 3
listening to spoken presentations 1 2 3
listening to instructions 1 2 3
listening to instructions for assignments 1 2 3
participating in discussions 1 2 3
asking questions in class 1 2 3
giving spoken presentations 1 2 3
other (please specify) _____

3. In relation to your college studies, evaluate your abilities and knowlege of English in the following areas.

1 = good 2 = satisfactory 3 = unsatisfactory

Reading 1 2 3
Writing 1 2 3
Speaking 1 2 3
Listening 1 2 3
Grammar 1 2 3
General Vocabulary 1 2 3
Technical Vocabulary 1 2 3

III. English Language Instruction

And next, provide your opinions about English language instruction in the College of Engineering.

Here are some ideas about English language in the College. Please indicate how far you agree with each idea.

1 = strongly agree 2 = agree 3 = disagree

More time should be given to English instruction. 1 2 3
The content of my English course is interesting. 1 2 3
Instruction should focus on general English. 1 2 3
Instruction should focus on the English needed for engineering studies. 1 2 3
More should be done to help students with speaking. 1 2 3
I enjoy my English class. 1 2 3
Having good English is important in this college. 1 2 3
Some instruction should focus on the English needs of engineers after college. 1 2 3
English is my least important course. 1 2 3
My English course is easy. 1 2 3
The English language teachers here do a good job. 1 2 3
My English course helps me in my engineering studies. 1 2 3

And finally, do you have any further comments about English language instruction in this College?

Thank you.

Appendix 3

Class Observation Protocol

Date:
Time:
Course:
Department:
Observer:
Class Type:

I. Instructional Activity

A) Note the approximate percentage of time given over to the activity.

B) Note the language (English/Arabic) used.

___ Lecturer (monologue)
___ Discussion (student to student)
___ Instructions
___ Instructor questioning students
___ Student questioning students
___ Small group discussion
___ Small group work
___ Presentation
___ Other

II. Instructional Aids

Note which of the following were used.

___ Over-heads
___ Handouts (take copies for the ELU reference)
___ Video/film
___ Blackboard text
___ Blackboard diagram/numerical information
___ Tools or other realia
___ Other

III. Student Activity

Note some samples of the language used, if relevant.

___ Taking notes
___ Asking questions
___ Asking for clarification/repetition
___ Explaining (e.g., instructions)
___ Giving comments
___ Other

IV. Student Difficulties

Note any observations you had of the nature, extent, and source of any language-related difficulties experienced by students.

V. Other

Do you have any other useful information about your observation or this protocol?